

**AN IMAGE CAPTURE DEVICE, A METHOD OF CAPTURING IMAGES, AN  
IMAGE PRODUCING DEVICE AND A METHOD OF PRODUCING IMAGES**

**Cross Reference to Related Application**

5       This application claims priority to Japanese Patent Application No. JP-2000-319773, and the disclosure of that application is incorporated herein by reference to the extent permitted by law.

10       **Background of the Invention**

1.       **Field of the Invention**

The present invention relates to an image capture device for capturing images of an object, a method of capturing images thereof, an image producing device for producing images and a method thereof.

2.       **Description of the Related Art**

Generally, recording of graphics information has been directed mostly to recording of planar 2-dimensional graphics information, however, recently, a technology for recording a solid (stereoscopic) image such as a holographic stereogram is being realized.

The holographic stereogram is produced, for example, in such a manner that a plurality of images of an object are captured sequentially from different viewing points as its original images, then they are sequentially exposed to be recorded as element holograms in a strip or dot patterns on a single hologram recording medium. When this holographic stereogram is viewed by an observer with his/her one eye from a given position, a set of multiple

pieces of graphic information recorded as part of each element hologram are recognized as a 2-dimensional image, while on the other hand, when viewed by the observer with one eye from another position different from the above-mentioned given position, a set of multiple pieces of graphic information recorded as another part of the each element hologram are recognized as another 2-dimensional image. Therefore, when the observer views the holographic stereogram with his/her both eyes, its exposed and recorded image is recognized as a 3-dimensional image because of a parallax between the both eyes.

As related applications utilizing such holographic stereogram, there are printer systems that combine an image capturing device for capturing images of an object and forming a string of parallax image thereof with a printing device for generating a holographic stereogram and outputting as a printed matter, for example, as disclosed in "Instant holographic portrait printing system" by Akira Shirakura, Nobuhiro Kihara and Shigeyuki Baba, Proceedings of SPIE, Vol. 3293, pp.246-253, Jan. 1998, "High-speed hologram portrait print system" by Kihara, Shirakura, Baba, 3-D Image Conference 1998, July, 1998, and the like. These printing systems can provide a set of services from an image capturing of an object to printing of its holographic images at the same service spot.

#### **Summary of the Invention**

When a parallax image string is obtained by shooting its images as done in the printer systems described above, it should be noted that there exist various parameters to

be considered such as an image shooting angle, a shooting distance indicating a positional relation between an object and a viewing (shooting) point, a length of translation motion of an image capturing device, and a 5 pitch of shooting. Further, when producing a holographic stereogram and outputting it as a printed matter, there are various parameters also to be considered in its printing device such as at what viewing angle and at what exposure pitch its holographic stereogram should be 10 exposed and recorded, and so on.

Here, also it should be noted that in a case of producing a printed matter such as the holographic stereogram using the parallax image string which is obtained with the image-capturing device, it becomes 15 necessary to ensure for various parameters in the image capturing device and those in the printing device to be matched and coordinated therebetween. If there is any mismatching therebetween, a proper and correct solid (stereoscopic) image cannot be obtained.

20 The parallax image string can also be produced as computer graphics images created such as CG (Computer Graphics). Even in such a case where a printed matter, for example, of a holographic stereogram is produced using the parallax image string created by CG or the like, 25 it is essential in order to be able to obtain a proper and correct stereoscopic image that various parameters at the time of image shooting and at the time of printing in its printer are matched and coordinated therebetween.

For example, in a white light reproduced holographic 30 stereogram, there occurs such a phenomenon that a distortion and/or blurring in a holographic stereogram